<110> KIM, Dong-Soo NAM, Yoon-Kwon NOH, Jae-Koo <120> EXPRESSION VECTOR CONTAINING LECTIN GENE REGULATION SITE OF MUD LOACH <130> PPBA0566 <160> 18 <170> KopatentIn 1.71 <210> <211> 2329 <212> DNA (213> Misgurnus mizolepis 4D <400> aagagtgtgg ctttctaccc agaacattcc gatgcgttcc gtctcgaata aacttgctcc 60 . Poš caaatttatt ggcccgtttt ctgttaccaa gatcattaat ccggtaacag tgcgtctgag 120 cettecteeg gegtacagga gggtteacce tgtgtteeac gtetecaata ttaaaceggt 180 gattttttcc cgtcttaatc cgcctgcccc ggttcccccc ccgcctcgtc tcgttaatgg 240 ggaaccgact tattcggtta atcgtattct ggactccaga cggaggggac gcggatttca 300 gtacttggtg gattgggaag gttacggtcc ggaggagaga aggtgggttc ctgctcggga 360 catactggat caccgcctta tcgatgttta caatcaacag gtaaagcagg ctgggaacgt 420 caaggggcgt tectagggga gggggtactg teaeggtagg aaateetetg ttteeteegt 480

540

gtcatgtttg tgtgtgtgt tgtttgttac tctctgctct gccatgtgct cgttaggctg

600 atgtcgctca cctgtgtgtt gattgcctcg ctccagctgc tcatcattac atctcctcca taaatactca catgactctc tgttccctgc cagatgatca-ctttctgttt ggtcctcgtg 660 720 ttgtgtggtt ctacgtctca gtcttggatt acgagttgca ttgtggattg tttattgtcg 780 tagtcgtctt cgtgtggatg ttccgtgtac agtctggatt caccactgct caccactcca 840 ccaacgccgc actcaataac cacctaccac cgtagtcctc gtcaccattg ccaacaacac 900 cggacatttc ctgcttgtgt catttctctc tttgtgttta taaataaaca ttgtgttttc acctgcaatt gcttccgctc agttcgtgtc attacaagta cctcaaaata catattagta 960 1020 tctcaaaggt acatattgct actaaatgtt tacacatctg tacctaatgg tccatacaat 1080 taccttttta aagggtgctg ccccagtgac agctagggta catattttga cttttttcta 1140 acaatgtagg toctaaaggt acggtagget aatctaccca aaattgtatt ctgttttgta 1200 ttcctgtagg taccaaacag aaacttaggg tacagcccca gtgacagaaa aggtacagtt 1260 ttgtacctta atttctgaca atgaacgata aacaagaata actaaaacac taccaaatga 1320 tactaaaaac gaaagcataa aaaagatgaa aactaaaatg caaagaaaag aaaactgaag tgactgagtt aaatttatgg cagaatgttt cctgtttctg ataagatgaa aaccttactt 1380 1440 ctaataaccc aaataaccaa ataattatct gcaaacatta aagaaactca gttatgcaat 1500 ctatggtaaa tagttactga aagaatacac caatgccaag gtttttgggc aagaggtttg 1560 tttacatgat atttactttt tgtgtggtca gatgagctgt.ccggtggtgg gcccgtcggc 1620 catggttcag gcttttacgt gctgcaaatg ggaatgagtc aggttcagtt caacagcctt

|                  | gaacacgaag | tgatgtgaaa | tgctgatcag | ctgttcagct | taaaaaaagt      | tcatttgctg | 1680   |
|------------------|------------|------------|------------|------------|-----------------|------------|--------|
|                  | ccttaaaatc | caactttaaa | atattagttg | acacaaacag | ttttaaacag      | tttctcgttt | 1740   |
|                  | tgagtcaact | aatatttta  | agttgaatga | actcaaaatt | ttaagtcgct<br>- | ttttaagttg | 1800   |
|                  | aaacatttct | ttaccgttta | tatcaagcag | actgcaataa | aactcttaca      | aaaatgcttc | 1860   |
|                  | tttgcatgat | cacacacatt | aaagaaacac | actaaaaata | caaaaataaa      | caaatctata | 1920   |
|                  | tatgcaatat | atttatataa | aatacttgca | ataaacagta | aaataacaaa      | atctaatgta | 1980   |
| n company        | aagacatgag | tcaataaaaa | tatgtaaaac | atccataaat | gtaaaatata      | ctgaaagaaa | 2040   |
| Mary Arena Arena | tgtgaacaca | gaaaagtgtt | catgtgtcag | atcaggatgt | ttattttgat      | aaccatcaca | 2100   |
| ARREST TRANSPORT | tttcatcata | tattgtatac | atatatacaa | gttcatgata | tccagattta      | cttttcttgt | 2160   |
| 775.174          | ttatgttatg | gagtccctcc | cactgaacaa | aagtataaaa | gataggactc      | ctcattgacc | 2220   |
| tr mant and      | atcacacaat | ctacactgaa | gttctgaaag | tgaagatttg | acaaaaaggt      | gagtttttat | 2280   |
|                  | aacattaact | tcagcagtgt | acatatgagt | gcagatgtgt | cacttttcc       |            | . 2329 |

<210> 2

<211> 7224

<212> DNA

<213> Misgurnus mizolepis

<220>

<221> CDS

<222> (2425)..(2487)

<220>

```
<221>
          CDS
  <222>
          (2695)..(2778)
  <220>
  <221>
          CDS
  <222>
           (2889)..(3014)
  <220>
  <221>
          CDS
  <222>
          (3198)..(3311)
  <220>
  <221>
          CDS
  <222>
           (3918)..(3986)
<400>
  caggtgaggt cgcgcaccaa ggctaaggcc gatcgccacc agtcgaagcc tccccgttac
                                                                            60
4D
T.
£3
  gtcgtcggtc aaagagtgtg gctttctacc cagaacattc cgatgcgttc cgtctcgaat
                                                                           120
į.
ĒŤ,
aaacttgctc ccaaatttat tggcccgttt tctgttacca agatcattaa tccggtaaca
                                                                           180
gtgcgtctga gccttcctcc ggcgtacagg agggttcacc ctgtgttcca cgtctccaat
                                                                           240
  attaaaccgg tgatttttc ccgtcttaat ccgcctgccc cggttccccc cccgcctcgt
                                                                           300
  ctcgttaatg gggaaccgac ttattcggtt aatcgtattc tggactccag acggagggga
                                                                           360
  cgcggatttc agtacttggt ggattgggaa ggttacggtc cggaggagag aaggtgggtt
                                                                           420
  cctgctcggg acatactgga tcaccgcctt atcgatgttt acaatcaaca ggtaaagcag
                                                                           480
  gctgggaacg tcaaggggcg ttcctagggg agggggtact gtcacggtag gaaatcctct
                                                                           540
  gtttcctccg tgtcatgttt gtgtgtgtgt gtgtttgtta ctctctgctc tgccatgtgc
                                                                           600
```

660 tegttagget gatgtegete acctgtgtgt tgattgeete geteeagetg eteateatta 720 catctcctcc ataaatactc acatgactct ctgttccctg ccagatgatc actttctgtt 780 tggtcctcgt gttgtgtggt tctacgtctc agtcttggat.tacgagttgc attgtggatt 840 gtttattgtc gtagtcgtct tcgtgtggat gttccgtgta cagtctggat tcaccactgc 900 tcaccactcc accaacgccg cactcaataa ccacctacca ccgtagtcct cgtcaccatt 960 gccaacaaca ccggacattt cctgcttgtg tcatttctct ctttgtgttt ataaataaac 1020 attgtgtttt cacctgcaat tgcttccgct cagttcgtgt cattacaagt acctcaaaat acatattagt atctcaaagg tacatattgc tactaaatgt ttacacatct gtacctaatg 1080 gtccatacaa ttaccttttt aaagggtgct gccccagtga cagctagggt acatattttg 1140 1200 actttttct aacaatgtag gtcctaaagg tacggtaggc taatctaccc aaaattgtat 1260 tctgttttgt attcctgtag gtaccaaaca gaaacttagg gtacagcccc agtgacagaa aaggtacagt tttgtacctt aatttctgac aatgaacgat aaacaagaat aactaaaaca 1320 1380 ctaccaaatg atactaaaaa cgaaagcata aaaaagatga aaactaaaat gcaaagaaaa gaaaactgaa gtgactgagt taaatttatg gcagaatgtt tcctgtttct gataagatga 1440 aaaccttact tctaataacc caaataacca aataattatc tgcaaacatt aaagaaactc 1500 1560 agttatgcaa tctatggtaa atagttactg aaagaataca ccaatgccaa ggtttttggg caagaggttt gtttacatga tatttacttt ttgtgtggtc agatgagctg tccggtggtg 1620 1680 ggcccgtcgg ccatggttca ggcttttacg tgctgcaaat.gggaatgagt caggttcagt

|                  | tcaacagcct                          | tgaacacgaa                   | gtgatgtgaa | atgctgatca  | gctgttcagc | ttaaaaaaag | 1740 |  |  |  |  |  |  |  |
|------------------|-------------------------------------|------------------------------|------------|-------------|------------|------------|------|--|--|--|--|--|--|--|
|                  | ttcatttgct                          | gccttaaaat                   | ccaactttaa | aatattagtt  | gacacaaaca | gttttaaaca | 1800 |  |  |  |  |  |  |  |
|                  | gtttctcgtt                          | ttgagtcaac                   | taatatttt  | aagttgaatg  | aactcaaaat | tttaagtcgc | 1860 |  |  |  |  |  |  |  |
|                  | tttttaagtt                          | gaaacatttc                   | tttaccgttt | atatcaagca  | gactgcaata | aaactcttac | 1920 |  |  |  |  |  |  |  |
|                  | aaaaatgctt                          | ctttgcatga                   | tcacacacat | taaagaaaca  | cactaaaaat | acaaaaataa | 1980 |  |  |  |  |  |  |  |
|                  | acaaatctat                          | atatgcaata                   | tatttatata | aaatacttgc  | aataaacagt | aaaataacaa | 2040 |  |  |  |  |  |  |  |
|                  | aatctaatgt                          | aaagacatga                   | gtcaataaaa | atatgtaaaa  | catccataaa | tgtaaaatat | 2100 |  |  |  |  |  |  |  |
| Hart that the th | actgaaagaa                          | atgtgaacac                   | agaaaagtgt | tcatgtgtca  | gatcaggatg | tttattttga | 2160 |  |  |  |  |  |  |  |
|                  | taaccatcac                          | atttcatcat                   | atattgtata | catatataca  | agttcatgat | atccagattt | 2220 |  |  |  |  |  |  |  |
| The second       | acttttcttg                          | tttatgttat                   | ggagtccctc | ccactgaaca  | aaagtataaa | agataggact | 2280 |  |  |  |  |  |  |  |
| han ander them   | cctcattgac                          | catcacacaa                   | tctacactga | agttctgaaa  | gtgaagattt | gacaaaaagg | 2340 |  |  |  |  |  |  |  |
| Nach miles       | tgagttttta                          | taacattaac                   | ttcagcagtg | tacatatgag  | tgcagatgtg | tcacttttcc | 2400 |  |  |  |  |  |  |  |
|                  | tgttcattca                          | ttttcagatt                   |            | atg gca gtc |            |            | 2448 |  |  |  |  |  |  |  |
|                  | Met Ala Val Met Arg Ala Leu Val 1 5 |                              |            |             |            |            |      |  |  |  |  |  |  |  |
|                  |                                     | c ttg gtc t1<br>e Leu Val Ph | _          |             |            | aac        | 2490 |  |  |  |  |  |  |  |
|                  | caagacgttt                          | acaagattga                   | ccaaaccctg | ttaccaatat  | tccagattaa | attcccataa | 2550 |  |  |  |  |  |  |  |
|                  | aattgtgttt                          | tccataaaac                   | ttgttaaaca | ttataaacat  | catgaaagga | tgtcaacaga | 2610 |  |  |  |  |  |  |  |

| agcaacattt aaagcactta tagacagaaa cataaaacta ataatgtgac tttatattac  | 2670         |  |  |  |  |  |  |  |  |  |  |
|--|--------------|--|--|--|--|--|--|--|--|--|--|
| taatatttta atcactgtat agct cat cgc tgc cca cat gga tgg aca  His Arg Cys Pro His Gly Trp Thr  1 5   | 2718         |  |  |  |  |  |  |  |  |  |  |
| ccc ttt ggt gtg caa tgc tac aaa ttc ttc tct cag tca gtt gac tgg Pro Phe Gly Val Gln Cys Tyr Lys Phe Phe Ser Gln Ser Val Asp Trp  10 15 20  | 2766         |  |  |  |  |  |  |  |  |  |  |
| atc aca gct gag gt actgttattc agttattcaa attgttgaat aagaatactc  Ile Thr Ala Glu  25  | 2820         |  |  |  |  |  |  |  |  |  |  |
| aatgtcatga tccaagctga aacagattag attttatatt tgcaataaaa taatctctct  |              |  |  |  |  |  |  |  |  |  |  |
| ctctttag aaa aac tgt caa tct att gat gct aat ctt gca tct gtg cgc  Lys Asn Cys Gln Ser Ile Asp Ala Asn Leu Ala Ser Val Arg  1 5 10  | 2930         |  |  |  |  |  |  |  |  |  |  |
| ₽u-ò   |              |  |  |  |  |  |  |  |  |  |  |
|  | 2978         |  |  |  |  |  |  |  |  |  |  |
| agt aca atg gaa cac aac ttt ctc ctg agt ctg att gtg tct gct aac  Ser Thr Met Glu His Asn Phe Leu Leu Ser Leu Ile Val Ser Ala Asn   | 2978<br>3030 |  |  |  |  |  |  |  |  |  |  |
| agt aca atg gaa cac aac ttt ctc ctg agt ctg att gtg tct gct aac  Ser Thr Met Glu His Asn Phe Leu Leu Ser Leu Ile Val Ser Ala Asn  15 20 25 30  aca cgt gtt tgg att ggt ggc cat gat ggt gaa act gtaagt cattttgctc  Thr Arg Val Trp Ile Gly Gly His Asp Gly Glu Thr        |              |  |  |  |  |  |  |  |  |  |  |
| agt aca atg gaa cac aac ttt ctc ctg agt ctg att gtg tct gct aac  Ser Thr Met Glu His Asn Phe Leu Leu Ser Leu Ile Val Ser Ala Asn  15 20 25 30  aca cgt gtt tgg att ggt ggc cat gat ggt gaa act gtaagt cattttgctc  Thr Arg Val Trp Ile Gly Gly His Asp Gly Glu Thr  35 40 | 3030         |  |  |  |  |  |  |  |  |  |  |

|                     | tgg c   | tg   | tgg   | tct               | gat       | gga   | tct      | caa   | ttt              | cac    | ttt   | acc      | aac   | tgg   | tgc           | cct     |      | 3254    |
|---------------------|---|------|-------|-------------------|-----------|-------|----------|-------|------------------|--------|-------|----------|-------|-------|---------------|---------|------|---------|
|                     | Trp I   | eu   | Trp   | Ser               | Asp       | Gly   | Ser      | Gln   | Phe              | His    | Phe   | Thr      | Asn   | Trp   | Cys           | Pro     |      |         |
|                     |   | 5    |       |                   |           | 10    |          |       |                  | 1      | 5     |          |       |       |               |         |      |         |
|                     |   |      |       |                   |           |       |          |       |                  |        |       |          |       |       |               |         |      |         |
|                     | gga g   | jaa  | cct   | agc               | aat       | aat   | ttt      | ggt   | aaa              | gag    | aac   | tgc      | ctg   | gag   | ata           | aac     |      | 3302    |
|                     | Gly G   | lu   | Pro   | Ser               | Asn       | Asn   | Phe      | Gly   | Lys              | Glu    | Asn   | Cys      | Leu   | Glu   | Ile           | Asn     |      |         |
|                     | 20 25 30 35   |      |       |                   |           |       |          |       |                  |        |       |          |       |       |               |         |      |         |
|                     |   |      |       |                   |           |       |          |       |                  |        |       |          |       |       |               |         |      |         |
|                     | ttt a   | ıca  | cgt   | aaga              | aaagi     | tc to | catat    | catt  | at               | tgttt  | tta   | ttta     | acaat | tct   | taaa          | attct   | a    | 3360    |
|                     | Phe Thr Arg   |      |       |                   |           |       |          |       |                  |        |       |          |       |       |               |         |      |         |
|                     |   |      |       |                   |           |       |          |       |                  |        |       |          |       |       |               |         |      |         |
|                     | tagca   | attt | tg ·  | tatta             | aaat      | tt a  | cttgt    | ttaa  | a tg             | tcaga  | aaaa  | tgct     | tacgt | tgc   | agtg          | tatto   | a    | 3420    |
| į<br>į              |   |      |       |                   |           |       |          |       |                  |        |       |          |       |       |               |         |      |         |
| Fra<br>Est<br>Est   | ctaca   | atto | cag ( | atcc              | cttt      | aa c  | cttt     | cagto | g tt             | gttat  | ttt   | gca      | gcct  | gat   | ggta          | caatt   | .g   | 3480    |
|                     |   |      |       |                   |           |       |          |       |                  |        |       |          |       |       |               |         |      |         |
| £                   | tttga   | aatt | ca    | tact <sup>.</sup> | tggt:     | ta a  | ccata    | aatga | a aa             | aagt   | gaaa  | aca      | gaat  | ttt   | ataa          | atgtc   | :t   | 3540    |
|                     |   |      |       |                   |           |       |          |       |                  |        |       |          |       |       |               |         |      |         |
| # 185<br>185<br>185 | gtaaaaaatt ttaaaagaaa aaatgtcaca tttactgtat ttaaaccaag ggtgccaaac |      |       |                   |           |       |          |       | ıC               | 3600   |       |          |       |       |               |         |      |         |
| e :<br>Irdi         |   |      |       |                   |           |       |          |       |                  |        |       |          |       |       |               |         |      |         |
| Hung G              | tctgt   | cctt | gg    | aggg              | ccgg.     | tg g  | tgac     | ctgto | y ta             | gttt   | agct  | cta:     | acac  | taa   | tcaa          | acaca   | ıc   | 3660    |
| r<br>T              |   |      |       |                   |           |       |          |       |                  |        |       |          |       |       |               |         |      |         |
| many that           | ctaaa   | agca | agt   | ttat <sup>.</sup> | taaa      | gt c  | taac     | taago | c at             | acta   | gaaa  | ctt      | ctag  | aca   | ggtg          | agcto   | ja – | 3720    |
| ğ să                |   |      |       |                   |           |       |          |       |                  |        |       |          |       |       |               |         |      | 0.7.0.0 |
|                     | gacaa   | agti | tga   | aact              | aaac      | tc t  | gcag     | gacad | c cg             | ggcc.  | tcta  | gga      | acga  | gtt   | tggg          | cacco   | cc   | 3780    |
|                     |   |      |       |                   |           |       |          |       | ,                |        |       |          |       |       |               |         |      | 2040    |
|                     | tgatttagac cctttgcaac aacacttgaa attttgctca gatgcctctt gatcgttgct |      |       |                   |           |       |          |       |                  |        | ST.   | 3840     |       |       |               |         |      |         |
|                     |   |      |       |                   | 1 1 1 1 1 |       | <b>.</b> |       |                  |        |       | _4       |       |       |               | <b></b> | . 4  | 2000    |
|                     | gattt   | cata | aca   | ttta              | tttt      | ta t  | ccaa     | actac | c ac             | cggt   | aatg  | atc      | agta  | ctg   | attt          | tatti   | ٠. ١ | 3900    |
|                     | +-+   | -+   |       | ~~~               | ~~~       |       | ~ ~~     | .+ +~ | a +a             | .~ ~~  | + ~-  | + ~~     |       | + + c | *+ + <i>c</i> |         | ~    | 3950    |
|                     | catci   | cta  | ECC   | caca              |           |       | _        |       | _                | _      | _     |          |       |       |               | ca ac   | C    | 3930    |
|                     |   |      |       |                   | F         | asn A | ra c     | ys T  | rp <i>F</i><br>5 | 1511 F | rsb H | лта Р    | sp C  |       | <u> </u>      | r 11T   |      |         |
|                     |   |      |       |                   |           | τ     |          |       | J                |        |       |          | Τ,    | •     |               |         |      |         |
|                     | 202 1   | a+ a | add   | tac               | a++       | +~+   | acc      | Caa   | cct              | a++    | 202   | tc=      | + ~   | 122 : | aaa+4         | caatc   | +    | 4000    |
|                     | Thr I   |      | _     |                   |           | _     | -        |       |                  |        | _     |          | _     | juu o | اعتماما       | Jaaco   |      | 1000    |
|                     | T111  | -16  |       | 191<br>15         | + T C     | Cys   | та       | 20    | 110              | 116    | ALY   | -<br>PCT |       |       |               |         |      |         |
|                     |   |      |       | 10                |           |       |          | 20    |                  |        |       |          |       |       |               |         |      |         |

4060 gtttcaaagt actatgattt tactacatgc ctatacattt ttttctgatc ttattcttaa 4120 aactcagtat cttactgaag ctttctgaaa acttctccaa tcaataaaag catttataaa 4180 gcaaattgtt tgcattgttg agtcaaaaaa attaatcatc aaattaaata caatataaaa caaaacaaca atacatctaa aataacaaaa agggctttca caattgaaat agttaacctc 4240 aggttattct aaaccccagg tttaaagaat cctgggttat ctgtttcacg tttcacactg 4300 4360 ttcatactta accaggaggt aaagaaataa ccctgggtat tcataatctg atgtttcaca ctgtgcattt ctaaacctta agttaatgtt ttcatttgca tatttggggt gtcagcaatt 4420 4480 taaggaagtt tcttcacctc ctcattagca tccagacagc agaagtaggg aactgagcag 4540 cgttcatgac tgaggttctc ttcagaacaa ctgaagtaca ttgagactaa tccatgtaag 4600 agattcctcc acagccagtg gcatgtttac cattttgggg gtcctaagca aagttcaaga accggggccc cccatgcccc agcattgccc aaggtttttc atttgaattg cacaacaata 4660 4720 acattcagta tacagaatta agttagatat atataaaccg ggtttattta gttgtaccct gcttaaagta acactaaatt gttacagtat gacaaagatt cttatagatt catatataga 4780 tgtcttagga tgtatttaaa acaatgtaat taatactgca acttcagtgt ctgacatctt 4840 4900 actaaaaaaa ctaaatgagg aaaaagagga agcattagat tatgattcag actggtctaa 4960 caaacaccag caaacaatat tgtaagttgg ttaatgcttg acttaatgga tgggaatcac 5020 ataactetea tgtteatatt geaaaaacaa aettaetgtg agataeaaca ageatataga 5080 ctagacatac actaaagatg agattttaat gacaatgatg agatacagaa tatgatttat

gtattttcga catgtgtggt gtctttatca tgttaatacc tgtacgagca tggaacaaaa 5140 gatgcgtgaa tgttgtgcag ttatgagagc aaagatagag tcgtgtgagc gctcattcca 5200 5260 gcacttgtgt ggctgcattt gtgcgcgctg agcagaggtc cgctttcccg tagagcttcg ttcatgaagt agcctttatg tgcccttgca aggatgtggg caaatattat tctgcgtgca 5320 5380 tactcacaca tetetecete geaegtgett tatcegtace ttagatttgg ttetgaataa 5440 acctaacata ctttcgcaca ccttgtggcc agtagggggc ccccaagcct gcgggcccta cgcaattgca tggtttgcgt ggtgggtaaa cacgccactg gttacattgc aagatacttt 5500 5560 gtaaaaaaat gttaatctgt taatagtgcc ctattttaac aatctaagtg catggtctaa agtgcaaaag ggtttgtcct aatccacttc tgctaattta acgacgggac aaattttggg 5620 gcgtctagcg cactgtctta aagggttgtt cctattctag taatgagtaa tgggtgttt 5680 ttgggcatga gttcgattca atgttattta tataaagctt ttcacaattg tttaattgtt 5740 5800 tcaaagcagc tttacattaa aatatatatt actgtttttt taaactgatg taagattgac acgaacagtg attgttgatt tgtatgtgca tcaaggcaag gcaagtttat ttgtatagca 5860 catttcatac acagaggtca ttcaaggtgc tttacataga aatgagaaaa caatatatga 5920 gaaaaaaagt atgtagaaaa aaatcaaaga tacatttgaa tttaaaatat caattaaaag 5980 6040 aaaataaatg tgattttaat agaaactgtt taaatgtgtg aaaaaaataa agtataaaac agtaaaaaaa aattattatt atttagctca gtgggaccat atacaggttg aacaggagtg 6100 cttcggacaa cctgacaatt gtcagaatag atcagagaat tgcctggaaa taaacttttg 6160

6220 aagtaagaat gtctattatt attgttttta ttataatctt aacattttat aggatttagt 6280 acacaataag ccagtttagc tgtcagaaaa tgttacgtgc agtgcattca ctacattcag atccctttca ttttattttg ttcaatgttg tgtagtgatt ttgacacgag caccaattaa 6340 6400 tttagtgatt ttcacatggg caaccattgg ttagtagtat gccatacaca ggacactaga 6460 ggtttcagaa gtacatgctg ggaccaaaga gaccttatta gtactgtcac ggtaggaaat cctctgtttc ctccgtgtca tgtttgtgtg tgtgtgtt tgttactctc tgctctgcca 6520 6580 tgtgctcgtt aggctgatgt cgctcacctg tgtgttgatt gcctcgctcc agctgctcat 6640 cattacatct cctccataaa tactcacatg actctctgtt ccctgccaga tgatcacttt 6700 ctgtttggtc ctcgtgttgt gtggttctac gtctcagtct tggattacga gttgcattgt 6760 ggattgttta ttgtcgtcgt cgtcttcgtg tggatgttcc gtgtacagtc tggattcacc 6820 actgctcacc actccaccaa cgccgcactc aataaccacc taccaccgta gtcctcgtca 6880 ccattgccaa caacaccgga catttcctgc ttgtgtcatt tctctctctg tgtttataaa 6940 taaacattgt gttttcacct gcaattgctt ccgctcagtt cgtgtcatta cagaatcatc tggccataca tggaagcagc aggagaccaa cccacggcca cgctggagga atttctccag 7000 7060 cgaactctgg ctcgtatgga tcttcaggac cagtcgatca acgaaatgcg ataggccgtc 7120 catgcaatga tgacgaaggt gtccgagctc tctcagcgtt cctctcatcc ttcgcctccc 7180 actgcgccac ccacaccgcc cgcaccatct tctcctccaa ggggtggttt tcctccggag 7224 ccccgattac cgatccctga gaaatactcc ggtgagccaa atta

```
<210> 3
   <211> 21
   <212> PRT
   <213> Misgurnus mizolepis
   <400> 3
   Met Ala Val Met Arg Ala Leu Val Leu Leu Phe Leu Val Phe Ser Val
                   5
                                     10
                                                       15
   Glu Ser Ala Pro Gly
<210> 4
<211> 28

<212> PRT
              20
🚁 <213> Misgurnus mizolepis
į.
Day.
<400> 4
tion that wills
   His Arg Cys Pro His Gly Trp Thr Pro Phe Gly Val Gln Cys Tyr Lys
                   5
     1
                                     10
                                                       15
   Phe Phe Ser Gln Ser Val Asp Trp Ile Thr Ala Glu
               20
                                 25
   <210> 5
   <211> 42
   <212> PRT
   <213> Misgurnus mizolepis
   <400> 5
   Lys Asn Cys Gln Ser Ile Asp Ala Asn Leu Ala Ser Val Arg Ser Thr
                   5
                                     10
                                                       15
```

Met Glu His Asn Phe Leu Leu Ser Leu Ile Val-Ser Ala Asn Thr Arg 25 30 20 Val Trp Ile Gly Gly His Asp Gly Glu Thr 35 40 <210> 6 <211> 38 <212> PRT <213> Misgurnus mizolepis and the trade them there that the are <400> 6 Glu Gly Gln Trp Leu Trp Ser Asp Gly Ser Gln Phe His Phe Thr Asn 15 Trp Cys Pro Gly Glu Pro Ser Asn Asn Phe Gly Lys Glu Asn Cys Leu ≇: 20 25 30 E spile F. ∳ Glu Ile Asn Phe Thr Arg 35 <210> 7 <211> 23 <212> PRT <213> Misgurnus mizolepis <400> 7 Asn Arg Cys Trp Asn Asp Ala Asp Cys Ser Thr Thr Ile Ser Tyr Ile 1 5 10 15

Cys Ala Gln Pro Ile Arg Ser 20

```
<210>
            8
   <211>
            19
   <212>
            DNA
   <213>
            Artificial Sequence
   <220>
   <223>
            primer for amplifying a lectin gene regulation site of a mud
           loach
   <400>
                                                                              19
  ggaaaagtga cacatctgc
the trade that the trade that the trade
  <210>
  <211>
            19
  <212>
            DNA
g: <213>
            Artificial Sequence
Į,s.
4 <220>
the that talk
  <223>
            primer for amplifying a lectin gene regulation site of a mud
           loach
   <400>
            9
   ggaaaagtga cacatctgc
                                                                              19
   <210>
            10
   <211>
            22
   <212>
            DNA
   <213>
            Artificial Sequence
   <220>
   <223>
            primer for detecting a BFP gene
```

```
<400>
               10
   ggccacaagt tctctgtcag tg
                                                                                              22
   <210>
               11
   <211>
               20
   <212>
               DNA
   <213>
               Artificial Sequence
   <220>
   <223>
               primer for detecting a BFP gene
Just Jim, stirl, jinh, jirt jiril, jimi

2 k ji k -- k k h-- indi

taali hali linu, tant tan ali ali mat
   <400>
               11
                                                                                             20
   gggcagattg tgtggacagg
2 :
   <210>
               12
20
               DNA
               Artificial Sequence
   <220>
   <223>
               primer for detecting a CAT gene
   <400>
               12
                                                                                             20
   ctataaccag accgttcagc
   <210>
               13
   <211>
               25
   <212>
               DNA
```

<213>

Artificial Sequence

<220> primer for detecting a CAT gene <223> <400> 13 25 cgccccgccc tgccactcat cgcag <210> 14 <211> 33 <212> DNA <213> Artificial Sequence ad plant that them that that that the <220> primer for amplifying a growth hormone gene of a carp <223> til ordin ham raths bron hate ordin <400> 14 33 ccgcggacaa acattcacaa gctcttaact aag <210> 15 29 <211> <212> DNA <213> Artificial Sequence <220> <223> primer for amplifying a growth hormone gene of a carp <400> 15 29 ttctctatta aagttttaaa ttgcatcca

<210>

16

```
<211>
              19
   <212>
              DNA
   <213>
             Artificial Sequence
   <220>
              primer for detecting a lectin gene regulation site of a mud loach
   <223>
   <400>
              16
                                                                                        19
   gttatggagt ccctcccac
   <210>
              17
the truly that the truly that the truly that
   <211>
   <212>
              DNA
              Artificial Sequence
   <213>
   <220>
£.:
   <223>
              primer for detecting a growth hormone gene of a mud loach
all sure, all sale group

S. han been by the

udm. Naor enthe than, that
   <400>
              17
                                                                                        19
   cagccagctg gtgcaggtg
   <210>
              18
   <211>
              23
   <212>
              DNA
   <213>
              Artificial Sequence
   <220>
              primer for detecting a growth hormone gene of a carp
   <223>
   <400>
              18
```

acaacacctg caccagctgg ctg

23